

**IN THE CLAIMS:**

Please cancel claims 22-27 and add new claims 34-45.

1-15. (Canceled)

16. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage corresponding to n-bit digital signal (n is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

( $2^x + 1$ ) gradation voltage lines;

a first switching circuit having  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of the ( $2^x + 1$ ) gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having  $2^x$  second switching elements wherein each one of  $2^x$  second switching elements electrically connected to each one of ( $2^x + 1$ ) gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$ .

17. (Previously Presented) A circuit according to claim 16, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

18. (Previously Presented) A circuit according to claim 16, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

19. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage corresponding to  $n$ -bit digital signal ( $n$  is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$  gradation voltage lines;

a first switching circuit having the  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of 1st line to  $(2^x)$ th line of the  $(2^x + 1)$  gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having the  $2^x$  second switching elements

wherein each one of  $2^x$  second switching elements electrically connected to each one of 2nd line to  $(2^x + 1)$ th line of the  $(2^x + 1)$  gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$ .

20. (Previously Presented) A circuit according to claim 19, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

21. (Previously Presented) A circuit according to claim 19, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

22-27. (Canceled)

28. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage

corresponding to n-bit digital signal (n is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$  gradation voltage lines;

a first switching circuit having  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of the  $(2^x + 1)$  gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having  $2^x$  second switching elements wherein each one of  $2^x$  second switching elements electrically connected to each one of  $(2^x + 1)$  gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit;

a forth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$ .

29. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

30. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

31. (Previously Presented) A D/A conversion circuit for supplying a gradation voltage corresponding to  $n$ -bit digital signal ( $n$  is a natural number that is equal to or larger than 2), comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$  gradation voltage lines;

a first switching circuit having the  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of 1st line to  $(2^x)$ th line of the  $(2^x + 1)$  gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having the  $2^x$  second switching elements wherein each one of  $2^x$  second switching elements electrically connected to each one of 2nd line to  $(2^x + 1)$ th line of the  $(2^x + 1)$  gradation voltage lines; and

a second output line electrically connected to the second switching

circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit;

a forth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$ .

32. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is manufactured on an insulating substrate by using a plurality of thin film transistor.

33. (Previously Presented) A circuit according to claim 28, wherein the D/A conversion circuit is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

34. (New) A display device, comprising:

a plurality of TFTs arranged in matrix;

a gate signal line driver circuit driving the plurality of TFTs;

a source signal line driver circuit driving the plurality of TFTs, the source signal

line driver circuit comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$  gradation voltage lines;

a first switching circuit having  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of the  $(2^x + 1)$  gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having  $2^x$  second switching elements wherein each one of  $2^x$  second switching elements electrically connected to each one of  $(2^x + 1)$  gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$  ( $n$  is a natural

number that is equal to or larger than 2).

35. (New) A display device according to claim 34, wherein the display device is manufactured on an insulating substrate.

36. (New) A display device according to claim 16, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

37. (New) A display device, comprising:

- a plurality of TFTs arranged in matrix;

- a gate signal line driver circuit driving the plurality of TFTs;

- a source signal line driver circuit driving the plurality of TFTs, the source signal line driver circuit comprising:

  - a first D/A conversion circuit comprising:

    - $(2^x + 1)$  gradation voltage lines;

    - a first switching circuit having the  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of 1st line to  $(2^x)$ th line of the  $(2^x + 1)$  gradation voltage lines;

    - a first output line electrically connected to the first switching circuit;

    - a second switching circuit having the  $2^x$  second switching elements wherein each one of  $2^x$  second switching elements electrically connected to each one of 2nd line to  $(2^x + 1)$ th line of the  $(2^x + 1)$  gradation voltage lines; and

    - a second output line electrically connected to the second switching



circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit; and

a forth switching element electrically connected to the second and third output lines,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$  ( $n$  is a natural number that is equal to or larger than 2).

38. (New) A display device according to claim 37, wherein the display device is manufactured on an insulating substrate.

39. (New) A display device according to claim 37, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

40. (New) A display device, comprising:

a plurality of TFTs arranged in matrix;

a gate signal line driver circuit driving the plurality of TFTs;

a source signal line driver circuit driving the plurality of TFTs, the source signal line driver circuit comprising:

a first D/A conversion circuit comprising:

$(2^x + 1)$  gradation voltage lines;

a first switching circuit having  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of the  $(2^x + 1)$  gradation voltage lines;

a first output line electrically connected to the first switching circuit;

a second switching circuit having  $2^x$  second switching elements wherein each one of  $2^x$  second switching elements electrically connected to each one of  $(2^x + 1)$  gradation voltage lines; and

a second output line electrically connected to the second switching circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit;

a forth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$  ( $n$  is a natural

number that is equal to or larger than 2).

41. (New) A display device according to claim 40, wherein the display device is manufactured on an insulating substrate.

42. (New) A display device according to claim 40, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.

43. (New) A display device, comprising:

- a plurality of TFTs arranged in matrix;

- a gate signal line driver circuit driving the plurality of TFTs;

- a source signal line driver circuit driving the plurality of TFTs, the source signal line driver circuit comprising:

  - a first D/A conversion circuit comprising:

    - $(2^x + 1)$  gradation voltage lines;

    - a first switching circuit having the  $2^x$  first switching elements wherein each one of  $2^x$  first switching elements is electrically connected to each one of 1st line to  $(2^x)$ th line of the  $(2^x + 1)$  gradation voltage lines;

    - a first output line electrically connected to the first switching circuit;

    - a second switching circuit having the  $2^x$  second switching elements wherein each one of  $2^x$  second switching elements electrically connected to each one of 2nd line to  $(2^x + 1)$ th line of the  $(2^x + 1)$  gradation voltage lines; and

    - a second output line electrically connected to the second switching

circuit;

a second D/A conversion circuit comprising:

$2^y$  resistor elements connected in series between the first output line and the second output line;

a third switching circuit having  $2^y$  third switching elements coupled to each other via the  $2^y$  resistor elements;

a third output line electrically connected to the third switching circuit;

a fourth switching element electrically connected to the second and third output lines, and

a buffer circuit electrically connected to the third output line,

wherein  $x$  and  $y$  are natural numbers which satisfy  $x + y = n$  ( $n$  is a natural number that is equal to or larger than 2).

44. (New) A display device according to claim 43, wherein the display device is manufactured on an insulating substrate.

45. (New) A display device according to claim 43, wherein the display device is utilized in any one of a video camera, a digital camera, a goggle-type display, a car navigation system, a personal computer, a DVD player, and a portable information terminal.